

Claims

1. A polynucleotide comprising:
 - 5 (i) a nucleic acid sequence set out in SEQ ID NO: 5, 7 or 9 or a sequence complementary thereto; or
 - (ii) a homologue or fragment of a sequence defined in (i).
- 10 2. A polynucleotide according to claim 1 consisting essentially of the nucleic acid sequence set out in SEQ ID NO: 5, 7 or 9 or a sequence complementary thereto.
3. A polypeptide encoded by a polynucleotide according to claim 1 or 2.
- 15 4. A polypeptide obtainable by expressing a polynucleotide according to claim 1 or 2 in a cell which is a *Streptomyces* cell or a cell of a heterologous species.
- 20 5. A polypeptide comprising the amino acid sequence set out in SEQ ID NO: 6, 8 or 9 or a homologue or fragment thereof.
- 25 6. A recombinant cell comprising at least one additional copy of a polynucleotide according to claim 1 or 2, wherein the cell naturally possesses at least one said polynucleotide.
- 30 7. A recombinant cell according to claim 6, wherein the cell is one which naturally produces pimaricin or a related molecule.
8. A recombinant cell according to claim 7 which is a *Streptomyces natalensis* cell.

9. A recombinant cell, wherein a polynucleotide according to claim 1 or 2 which naturally occurs in the cell has been inactivated.
- 5 10. A recombinant cell according to claim 9, wherein the cell is one which naturally produces pimarinic acid or a related molecule.
- 10 11. A recombinant cell according to claim 10 which is a *Streptomyces natalensis* cell.
12. A recombinant cell comprising a polynucleotide according to claim 1 or 2 which polynucleotide does not naturally occur in that cell or where the polynucleotide is
15 heterologous to that cell.
13. A recombinant cell according to claim 12, wherein the cell is one which does not naturally produce pimarinic acid.
- 20 14. A recombinant cell according to claim 13 which is a *Streptomyces lividans* or *Streptomyces coelicolor* cell.
15. A method for overexpressing a polynucleotide encoding a polypeptide according to any one of claims 3 to 5 in a
25 *Streptomyces* cell which method comprises:
- (i) attaching a promoter sequence to the said polynucleotide;
 - (ii) transferring the resulting promoter-polynucleotide complex into the said cell; and
 - 30 (iii) maintaining the resulting cell under conditions suitable for expression of the said polynucleotide.
16. A method for inactivating a polynucleotide encoding a polypeptide according to any one of claims 3 to 5 in a
35 *Streptomyces* cell which method comprises disrupting the coding sequence of the said polynucleotide.

17. A method for expressing a polynucleotide encoding a polypeptide according to any one of claims 3 to 5 in a heterologous cell which method comprises:

- 5 (i) attaching a promoter sequence to the said polynucleotide;
(ii) transferring the resulting promoter-polynucleotide complex into the said cell; and
(iii) maintaining the resulting cell under conditions
10 suitable for expression of the said polynucleotide.

18. A method for producing pimaricin which method comprises maintaining a cell according to any one of claims 6 to 8 under conditions suitable for obtaining expression of
15 the additional copy of a polynucleotide according to claim 1 or 2 and isolating the said pimaricin.

19. A method for producing a biomolecule which method comprises maintaining a cell according to any one of claims
20 9 to 11 under conditions which would be suitable for obtaining expression of the inactivated polynucleotide had it not been inactivated and isolating the said biomolecule.

20. A method for producing a biomolecule which method
25 comprises maintaining a cell according to any one of claims 12 to 14 under conditions suitable for obtaining expression of the polynucleotide which does not naturally occur in the cell and isolating the said biomolecule.

30 21. A biomolecule obtainable by a method according to claim 19 or 20.

22. Use of a recombinant cell according to any one of claims 6 to 8 in the production of pimaricin.

23. Use of a recombinant cell according to any one of claims 9 to 14 in the production of a biomolecule.

24. A vector containing a polynucleotide according to
5 claim 1 or 2 which is capable of expressing a polypeptide according to any one of claims 3 to 5.

25. A cell harbouring a vector according to claim 24.

10 26. A method for producing a polypeptide according to any one of claims 3 to 5, which method comprises maintaining a cell according to claim 25 under conditions suitable for obtaining expression of the polypeptide and isolating the said polypeptide.

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27. Use of an isolated or purified polypeptide according to any one of claims 3 to 5 for the oxidative modification of a methylgroup of a suitable compound.

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